



Stormwater Division
 Department of Public Works
 800 Rabbitt Road
 Gaithersburg, Maryland 20878

EROSION AND SEDIMENT CONTROL CHECKLIST

Project Name:		ESC Plan Number:	
Project Address:		ESC Plan Level*:	FINAL
		*(Concept, Prelim, Final, or a combination per Ch.8)	
Engineer Contact:		Reviewer Contact:	
Engineer Company:		SWM Plan Number:	

<u>Reviewer Markup Legend:</u>	Submittal Date:	Review Date:	Reviewer Initials:
√ Completed Satisfactorily.	_____	_____	_____
INC. Incomplete or Incorrect	_____	_____	_____
N/A Not Applicable	_____	_____	_____
? Not enough info provided.	_____	_____	_____

General Information:
 This checklist has been developed to provide specific instruction to engineers and to serve only as a supplement to the City's Chapter 8 Code. The initial checklist shall be completed by the City's plan reviewer. **All submissions must fully address the City's Chapter 8 Code addressing Erosion and Sediment Control and Stormwater Management for approval and compliance.**

This checklist shall be utilized in the review of the Concept, Preliminary and Final Erosion and Sediment Control Plans. Applicable items shall be provided in the level of detail needed in the first submittal. All comments are expected to be addressed in the immediately following subsequent submission. Failure to do so may result in less than a full review.

Plan Submission Process:
 The Initial Submission and subsequent submittals shall be made electronically for processing and fee acceptance. For all information related to permits please see: <https://www.gaithersburgmd.gov/services/permitting-inspections>

Note to the Applicant / Engineer:
 Your submission for Erosion and Sediment Control Plan has been reviewed. The review was made per the following checklist. If you do not address a checklist item and/or comments on the plan sheets, explain your reasoning in your transmittal letter.

The Review Checklist begins on the next page.

Note: Per Chapter 8, Section 8-25(1)(4): If a stormwater management plan involves direction of some or all runoff off from the site to an adjacent property, it is the responsibility of the developer to obtain from adjacent property owners any easements or necessary property interests concerning flowage of water. Approval of a stormwater management plan does not create or affect any right to direct runoff onto adjacent property without that property owner's permission.

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PART 1: PRE-REVIEW REQUIRED SUPPORTING INFORMATION

___	___	___	Transmittal which specifically explains the purpose of submission (i.e. what plan type, plan level, and associated plan tracking numbers).
___	___	___	Safe Conveyance / Adequate Outfall Analyses and Supporting documentation: Storm drain area maps and plans with supporting computational analysis which shows that runoff can be safely conveyed off-site. The City enforces the County’s analysis method, MCDOT Drainage Design Criteria, revised June 10, 2014.
___	___	___	Mapped Site Resources: <ul style="list-style-type: none"> <input type="checkbox"/> Wetlands <input type="checkbox"/> Major Waterways <input type="checkbox"/> Floodplains <input type="checkbox"/> Tidal and Nontidal Wetlands <input type="checkbox"/> Wetlands of Special State Concern <input type="checkbox"/> Wetland buffers <input type="checkbox"/> Stream buffers <input type="checkbox"/> Floodplains <input type="checkbox"/> Forests <input type="checkbox"/> Forest buffers <input type="checkbox"/> Steep slopes (> 15%) <input type="checkbox"/> Highly erodible soils <input type="checkbox"/> Springs/seeps <input type="checkbox"/> Intermittent streams <input type="checkbox"/> Vegetative cover <input type="checkbox"/> Ponds <input type="checkbox"/> ESD facilities <input type="checkbox"/> SWM BMPs
___	___	___	Downstream Facility Impacts for Developments that are within the drainage area of a previously approved and installed downstream facility: For downstream regional ponds, the applicant must be aware of the downstream pond and be able to demonstrate no adverse impacts to said pond. This is typically done via the Safe Conveyance / Adequate Outfall Analysis.
___	___	___	Record Plat: One (1) Copy of Recorded Plat, if completed. If not completed, current drafted plat is acceptable.
___	___	___	NRI/FSD: One (1) Copy of Approved NRI/FSD. <u>Note: NRI/FSD must identify steep slopes and soils. Soil Identification to include the name, symbol, and hydrologic group information.</u>
___	___	___	Wetlands Permit Number: The permit number for tracking purposes.
___	___	___	Floodplain Variance: Submitted documentation for Floodplain Variance, if applicable. Plan may be approved, but permit will not be issued until variance is approved.
___	___	___	USACE Permit (State Waterway Construction Permit) Number: for tracking purposes, the permit is either a Chesapeake Bay TMDL Permit or USACE NW27 (National Watershed Permit Number 27).
___	___	___	On-Site Storm Drain System: Must be designed to public ROW standards (materials, minimum slopes) if the system is conveying off-site public system’s runoff.
___	___	___	Site Plan (Final Site Plans): Submitted ESC/SWM Plans must conform to submitted entitlement plans. Applicant to include copies of Site Plans to demonstrate conformance.

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PART 2: OVERALL ENGINEERING PLAN REQUIREMENTS

___	___	___	Titleblock: Project Name, Address, Legal Subdivision (with lots/blocks and/or other appropriate legal references, election district).
___	___	___	Sheet Numbering: Erosion and Sediment Control Plans are separate from Stormwater Management Plans per City Code, All sheets shall be numbered as a single plan set (must have ESC-X of X, or ESC-X of X / SWM X of X). ESC/SWM Plans are not allowed to be a part of the greater construction set where no coversheets or overall plan numbers, C-XXX are applied). Typically, applicants use two sheets numbers: 1) the Plan Number, C-XXX and 2) the sheet number, ESC-X of X / SWM-X of X.
___	___	___	Signature / Seal of Licensed Professional: All sheets are to be signed and sealed by a registered professional, i.e. P.E. for design plans and R.L.A. for Landscape.
___	___	___	Match Lines: Must clearly identify corresponding sheet to sheet.
___	___	___	Overall Plan / Composite Sheet / Key map: An Overall Plan is required which identifies ESC measures across large distances for large tracts of lands and larger than typical scales.
___	___	___	Approval Block with Plan Number Included: The bottom right of each plan sheet, approximately 3" by 5" of blank space must be included to accommodate the City's Approval block.
___	___	___	Off-Site Grading: Requires permission from adjacent property owner prior to plan approval (letter of permission on plan or temporary or permanent grading easement document submitted with the liber/folio referenced on the plan).

PART 3: PLAN SPECIFIC REQUIREMENTS

COVER SHEET

___	___	___	Owner / Permit Applicant Name (individual and company), Address, Email Address, and Phone number.
___	___	___	Civil Engineer: Name (individual and company), Address, Email Address, and Phone Number.
___	___	___	Certifications (signed): <ul style="list-style-type: none"><input type="checkbox"/> Cut and Fill<input type="checkbox"/> Design Certification<input type="checkbox"/> Owners Certification<input type="checkbox"/> Maintenance on Private Lands
___	___	___	Vicinity Map with Site Identified (approximate outline of site and label); 1"=2000' minimum scale.
___	___	___	Required Permits Table: The Applicant / Engineer must note all required permits involved with the development including the City's permits. Provide copies of all Federal and State permits prior to Final ESC Approval.

PLAN VIEW SHEETS

___	___	___	Scale: Typical scales are 1" = 20' and 1" = 30'. Never smaller than 1" = 50'. Include a bar scale. <u>Any non-typical scale must be discussed with plan reviewers prior to submission.</u>
___	___	___	Property lines: And easements (site boundaries and adjacent properties) with Owner / Legal Description and mailing addresses for Site and immediately adjacent and confronting properties.
___	___	___	Fill Areas: Identify any areas of large amounts of structural fill. Rule of thumb: fill of 2' or more.

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—	—	—	Limits of Disturbance: Shall be per phase, along with identification of amount of disturbance, in acres and square feet (Initial, interim, and final phases).
—	—	—	Topography: Existing and proposed contours (2' contour intervals maximum) along with spot shot elevations as needed to identify drainage patterns. Note: For project with phased grading, interim contours or spot shots must be included and must demonstrate changes in drainage divides to sediment control measures.
—	—	—	Existing and Proposed Improvements: (buildings, streets, utilities, stormwater facilities, etc.)
—	—	—	Natural Resources: to be protected must be delineated (aka the buildable envelope must be shown).
—	—	—	Designated Wetlands and Waters of the U.S.: with associated buffers.
—	—	—	Composite Tax Map and Tabulated Information (if applicable): Information regarding acreage and tax account information for all parcels included as part of the development plan.
—	—	—	Soil Boundaries and Identification: On-Site Soils must be identified. Soil boundaries and Hydrologic group must be included on plan (i.e. name, symbol, and Hydrologic Group).
—	—	—	Floodplain, Stream Valley Buffer (SVB), and BRL Impacts: These items must be clearly shown and identified on the plan (as applicable to the property) along with any proposed grading or other improvements in these extents.
—	—	—	Plan Legend: must include sediment control, soils, Floodplain, SVB, BRL, and temporary storm drain symbology.
—	—	—	Sediment Control Device Labels & Identification: All devices from traps to inlet protection must be identified. <u>Note: Earth Dike for off-site diversion of runoff must have A-Channel treatment at a minimum.</u>
—	—	—	Sediment Control Measures and Temporary Storm Drain Infrastructure: Delineate all needed sediment control measures and temporary storm drain infrastructure per phase, including all devices, <u>associated drainage boundaries</u> and any applicable design requirements (for example, preceding slopes for silt fence and super silt fence).
—	—	—	Sediment Control Drainage Areas and Divides: Existing and Proposed divides must be delineated for entire site (off-site and on-site) and applied to ESC measures (see checklist item above). <u>Note: Label drainage areas with identifying information.</u>
—	—	—	Access, Staging, and Stockpiling: Each ingress and egress must be shown with Stabilized Construction Entrance with wash racks. Staging and stockpiling areas must be large enough for project size, located within the LOD, have proper erosion and sediment controls, and follow MDE benching requirements (2:1 slopes higher than 20 feet; 3:1 slopes higher than 30 feet and 4:1 slopes higher than 40 feet).
—	—	—	Inspector Check off Lists: Include construction checklists to be used as verification of SWM As-Built.

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Sediment Trap(s):

- Type of Trap (ST-I, ST-III)
- Drainage Divides
- Drainage Area to Trap
- Location of Trap
- Grading of Trap
- Bottom dimensions
- Fencing
- Inflow Points and associated protection (riprap inflow protection for slopes 4:1 and flatter; gabion inflow protection for steeper than 4:1)
- Outlet Protection (maximizing flow length from inflow points)
- Dewatering Devices: Specify method for dewatering/draining the trap and include necessary MDE details (e.g., removable pumping station, etc.) Specify in sequence of construction.
- Baffles (if applicable)
- Design Table (Information Sheet) must include: Drainage area, storage required, storage provided, weir crest elevation, storage depth, top storage dimensions, bottom dimensions, cleanout elevation, channel depth of flow, maximum side slopes with specifying cut and / or fill, bottom elevation, embankment elevation, and riser and barrel dimensions for trap type ST-I.

Sediment Basin(s):

- Existing contours and proposed grades (labeled contours ; major at a minimum)
- Shall not be located within 20' of building foundations.
- Basin Design and Construction information as required by Maryland State Standards and specifications; Low Hazard Class must be assured.
- Barrel Outfall Cross-section
- MCDEP / CMP Band and dewatering device detail
- Inflow Protection (riprap inflow protection for slopes 4:1 and flatter; gabion inflow protection for steeper than 4:1)
- Outlet Protection (maximizing flow length from inflow points)
- Dewatering Devices: Specify method for dewatering/draining the trap and include necessary MDE details (e.g., removable pumping station, etc.) Specify in sequence of construction.
- Safety Fence
- Baffles (if needed by design)
- Construction Access must be delineated
- Stockpiling location
- Sediment Control during basin installation.
 - Note: Initial disturbance for installation must be limited to installation of principal spillway.
- Base Flow must be indicated and requires clean water diversion.
- If No Base Flow, design requires diversion dikes above the disturbed area. Dikes must include, at a minimum, A-2 channel treatment.
- Design Table (Information Sheet) must include: Drainage area, storage required and storage provided (wet, dry, total), storage depth, bottom elevation, wet storage elevation, dry storage elevation, cleanout elevation, bottom dimensions, maximum side slopes with specifying cut and / or fill, bottom elevation, embankment elevation, and riser and barrel dimensions.

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—	—	—	Tree Lines (existing and proposed), Tree Save measures, and Tree Protection measures must be delineated. <u>Note construction details may remain on their prospective plans; the ESC must only delineate the extents of the tree save measures. Trees to be saved shall include DBH and Critical Root Zone.</u>
—	—	—	Adjacent Property Protection: for excavations near site boundaries, i.e. sheeting and shoring, etc.
—	—	—	Proposed Stormwater Management/ESD Facilities: Show grading of all SWM/ESD facilities, inflow, outflow, and overlay of sediment control measures.
—	—	—	Utilities: Existing and Proposed
—	—	—	Storm Drain Tie-Ins: Drainage conveyance system must be delineated and include topography and profile for 100' downstream of each outfall. Identification must include: Dimensions, Q_{10} , V_{10} , S_{MIN} , and/or rip-rap classification or stone classification (MDSHA Classification is acceptable for stone) and D_{50} if applicable.
—	—	—	At-Grade Outfalls: must release runoff into an existing system which is adequate to receive. <ul style="list-style-type: none"><input type="checkbox"/> Plan view must include adequacy notes/notations along with proposed tie-in channel dimensions, slopes (less than 2% is preferred), rip-rap design (length, width, and slope), Q_{10}, V_{10}, D_{50}, and rip-rap classification.<input type="checkbox"/> Cross-section must include detailing shape conforming to receiving channel, outfall dimensions, Q_{10}, V_{10}, D_{50}, and rip-rap classification, embedded depth (2.0 x D_{50}) and filter cloth underneath.<input type="checkbox"/> Outlet protection must be at zero percent for required distance from pipe outfall.<input type="checkbox"/> Areas downstream of the outfall shall have a non-erosive velocity and must extend to stable water course or a designed stable channel<input type="checkbox"/> Outfalls greater than 10% are considered erosive due to reconcentration of flows and high velocities encountered after the flow leaves the outlet protection and are not acceptable.

PART 4: SEQUENCE OF CONSTRUCTION, PROFILES, SCHEDULES, NOTES, AND DETAILS REQUIREMENTS

—	—	—	Sequence of Construction: The sequence of construction shall describe the relationship between the implementation and maintenance of controls, including permanent and temporary stabilization and the various stages or phases of earth disturbance and construction. Any changes or revisions to the sequence of construction must be approved by the city prior to proceeding with construction. <u>The sequence of construction must, at a minimum, include the following:</u> <ol style="list-style-type: none">1. Request for a pre-construction meeting with the appropriate enforcement authority;2. Clearing and grubbing for those areas necessary for installation of perimeter controls;3. Construction and stabilization of perimeter controls;4. Remaining clearing and grubbing within installed perimeter controls;5. Road grading;6. Grading for the remainder of the site;7. Utility installation, connections to existing structures, and whether storm drains will be used or blocked after construction;8. Installation of stormwater management measures;9. Installation of impervious areas;10. Final grading, landscaping and stabilization;11. Approval of the appropriate enforcement authority prior to removal of sediment controls; and12. Removal of controls and stabilization of areas that are disturbed by removal of sediment controls.
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—	—	—	<p>Individual Phase Sequence of Construction (if applicable): The applicant / engineer may utilize individual phases of sequence of construction shown on each plan view phase.</p>
—	—	—	<p>Request for approval Note: A statement placed on the plans (can be included with sequence of construction) requiring the developer/contractor to request the city to approve work completed in accordance with the approved erosion and sediment control plan, the grading or building permit, and Chapter 8 Code at the following stages:</p> <ol style="list-style-type: none"> 1) Prior to the start of earth disturbance 2) Upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance, excavation or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made; and 3) Prior to the removal of sediment control practices.
—	—	—	<p>Trap Profiles and details:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Outfall parameters <input type="checkbox"/> Storage volumes required and provided (wet storage, dry storage, total) <input type="checkbox"/> Elevations: bottom, wet storage, dry storage, weir crest, embankment, dewatering devices <input type="checkbox"/> For ST-I traps, pipe profile must include tie-in to downstream storm drain structure. Storm Drain structure must include interim and future inverts/elevations.
—	—	—	<p>Basin Profiles and details:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cross-section along centerline of embankment <input type="checkbox"/> Profile through principal spillway <input type="checkbox"/> Constructed and settled top elevations <input type="checkbox"/> Riser and barrel with sized and materials <input type="checkbox"/> Trash Racks <input type="checkbox"/> Orifice and weir sizes, including centerlines and inverts (to match calculations) <input type="checkbox"/> Cutoff trench/impervious core bottom and top elevations, side slopes, dimensions, and material <input type="checkbox"/> Embankment top width and elevations <input type="checkbox"/> Riser base <input type="checkbox"/> Anti-vortex device <input type="checkbox"/> All required Water surface elevations <input type="checkbox"/> Downstream outlet protection and tie-in (profile to extend 75 feet downstream of end of outlet protection) and designed per MDE 2011 D-4 Standards and Specifications for Rock Outlet Protection <input type="checkbox"/> Emergency spillway <input type="checkbox"/> Seepage control method <input type="checkbox"/> Freeboard <input type="checkbox"/> Method of dewatering (portable sediment tank, filter bag, etc.)
—	—	—	<p>Temporary Storm Drain Profiles: Must show interim conditions as well as future conditions, along with inverts and applicable details.</p>
—	—	—	<p>Storm Drain Flushing: Storm drain used to divert flow to a sediment trapping device must be flushed prior to trap removal. Include in sequence of construction.</p>
—	—	—	<p>Temporary blocking: Temporary blocking of inlets, pipes or pipe openings in structures must be shown on the plan view and identified with a corresponding symbol in the legend. The sequence of construction must address the timing of the installation of the blocking and removal with specific structure numbers noted. Temporary blocking is to be shown on the public or private storm drain profiles</p>

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— — — **Sediment Control Details:** Utilize standard MDE details. If project requires modification to standard detail (for example, filter log on pavement), the applicant / engineer must use the standard detail with markings to modify, the detail title must be marked "modified" on the detail sheet. For non-MDE sediment control measures such as at-grade curb inlet filtering, a typical detail with the acknowledgement of "or equivalent" is acceptable.

Note: The State of Maryland Department of Environment requires that all projects utilizing concrete construction must include the Concrete washout detail. The City prefers that the washout location be delineated on the plan, but it is not required.

— — — **Offsite impacts:** Permission is required for any temporary or permanent off-site impacts including grading, placement of SC measures, and site access. The applicant must obtain the necessary letter of permission and place it on the plan. When permission is granted via a recorded document, place a note on the plan and reference recording information.

— — — **Storm Drain Features:** The following must be included on the ESC plans:

- 1) Existing and proposed bridges, storm drains, culverts, outfalls, etc.;
- 2) Velocities and peak quantities of flow rates at outfalls for the two-year and ten-year frequency storm events; and
- 3) Site conditions around points of all surface water discharge from the site. This shall include photographs that can be included with the SWM Report.

— — — **Specifications for temporary and permanent stabilization:** At a minimum, the following are required:

- 1) The "Standard Stabilization Note" on the plan stating:
Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
 - a) Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes greater than three horizontal to one vertical (3:1);
 - b) Seven (7) days as to all other disturbed or graded areas on the project site not under active grading; and
- 2) Details for areas requiring accelerated stabilization

